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## PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

081468-0306164

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Application Number

10/671,864

Filed

September 29, 2003

First Named Inventor

RALPH KURT

Art Unit

1795

Examiner

Chacko Davis, Daborah

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

 applicant/inventor. assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.  
(Form PTO/SB/96)

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Registration number if acting under 37 CFR 1.34 \_\_\_\_\_

Date

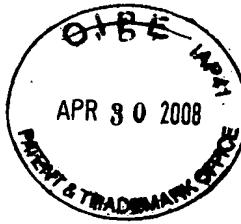
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This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Attorney Docket: 081468-0306164  
Client Reference: P-0360.010-US



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of:  
KURT, ET AL.

Confirmation Number: 8185

Application No.: 10/671,864

Group Art Unit: 1795

Filed: September 29, 2003

Examiner: Chacko Davis, Daborah

Title: LITHOGRAPHIC APPARATUS AND DEVICE MANUFACTURING METHOD

**COMMENTS IN SUPPORT OF PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Claims 1, 2, 4-6, 8-11, and 13-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,225,032 to Hasegawa *et al.* ("Hasegawa") in view of the Journal of Crystal Growth 222 (2001) 452-458 by McGinnis *et al.* ("McGinnis") and in further view of U.S. Patent No. 6,252,648 to Hase *et al.* ("Hase"). Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hasegawa in view of McGinnis and further in view of U.S. Patent No. 5,320,707 to Kanekiyo *et al.* ("Kanekiyo"). Applicant respectfully traverses these rejections, because the combination of these references does not disclose, teach, or suggest all of the features of the pending claims, and at least Hasegawa and McGinnis are directed to non-analogous art.

Independent claim 1 recites a lithographic projection apparatus that includes, *inter alia*, a radiation system configured to provide a beam of radiation, and "a projection system configured to project the patterned beam onto a target portion of the substrate, wherein a space in the radiation system and/or projection system comprises a composition to remove a contaminant from a surface of the apparatus, the composition containing (a) and (b), wherein (a) is one or more perhalogenated C<sub>1</sub>-C<sub>6</sub> alkanes and (b) is one or more compounds including one or more nitrogen atoms and one or more atoms selected from hydrogen, oxygen and halogen." Pending claims 2, 4-11, and 13-18 depend from claim 1.

Independent claim 19 recites a device manufacturing method that includes "providing a beam of radiation using a radiation system; patterning the beam; projecting the patterned beam of radiation onto a target portion of a layer of radiation-sensitive material at least partially covering a substrate; and producing reactive species of a composition to remove a contaminant from a surface, wherein a space through which the beam passes comprises the

composition containing (a) and (b), wherein (a) is one or more perhalogenated C<sub>1</sub>-C<sub>6</sub> alkanes and (b) is one or more compounds including one or more nitrogen atoms and one or more atoms selected from hydrogen, oxygen and halogen.” Claim 20 depends from claim 19.

As discussed in previous responses to Office Actions, Hasegawa discloses a method and apparatus for manufacturing liquid jet heads and for providing a water-repellent layer on the resin surface on a liquid jet head. In the method, a laser beam L passes through a discharge port 23 of the liquid jet head and irradiates the compounds in a resin 27 or absorbent 28 which then form a water-repellent layer onto the opposite side of the liquid jet head from which the laser beam was originally incident. *See* Hasegawa at col. 7, lns. 13-65; FIGs. 3-6. Applicant notes that the resin 27 and absorbent 28 of Hasegawa are not in a space of the radiation system and/or projection system. Instead, the resin 27 and absorbent 28 are located on the opposite side of the liquid jet head from where the laser beam L is incident and nowhere near the laser oscillator 10 or the projection optical system 15. In contrast, claim 1 recites “a space in the radiation system and/or projection system comprises a composition to remove a contaminant from a surface of the apparatus, the composition containing (a) and (b), wherein (a) is one or more perhalogenated C<sub>1</sub>-C<sub>6</sub> alkanes and (b) is one or more compounds including one or more nitrogen atoms and one or more atoms selected from hydrogen, oxygen and halogen.”

Moreover, Hasegawa fails to disclose, teach or render obvious at least the aspect of “projecting the patterned beam of radiation onto a target portion of a layer of radiation-sensitive material at least partially covering a substrate,” as recited in claim 19. The laser beam L of Hasegawa passes through the discharge port 23 or opening of the liquid jet head in order to irradiate compounds on either the resin 27 or absorbent 28. The result of this irradiation of these compound produces a water-repellant layer on the opposite side of the laser jet head from which the laser beam L is incident. Thus, the cited portions of Hasegawa fail to disclose or teach a radiation-sensitive material that at least partially covers a substrate and on which a patterned beam of radiation is projected. Because Hasegawa fails to disclose or teach the radiation-sensitive material, it does not disclose or teach the aspect of projecting the pattern beam onto a radiation-sensitive material.

Furthermore, the cited portions of Hasegawa fail to disclose, teach or render obvious at least the aspect of “a space through which the beam passes comprises the composition,” as recited in claim 19. As discussed above, the laser beam L of Hasegawa passes through the discharge port 23 of the liquid jet head and then onto the resin 27 or absorbent 28. The resin

27 or absorbent 28 is not in a space through which laser beam L passes, but is the target on which the laser beam L is incident.

Moreover, the cited portions of Hasegawa fail to disclose, teach or render obvious at least the aspect of “producing reactive species of a composition to remove a contaminant from a surface,” as recited in claim 19 and similarly recited in claim 1. Hasegawa actually teaches away from such a feature. Specifically, Hasegawa states “the throughput of product manufacture is enhanced without any provision of extra processing steps to remove the byproducts to be created by the irradiation of laser beam.” *See* Hasegawa at Abstract. Indeed, the process of Hasegawa adds material, and does not remove a contaminant.

Further, the cited portions of McGinnis and Hase fail to overcome the deficiencies of Hasegawa. The cited portions of McGinnis fail to provide any teaching regarding a lithographic apparatus. Moreover, the cited portions of McGinnis and Hase fail to provide any teaching regarding a composition to remove a contaminant from a surface of a lithographic apparatus, the composition containing one or more perhalogenated C<sub>1</sub>-C<sub>6</sub> alkanes. Rather, the cited portions of McGinnis merely provide disclosure of ammonia cleaning and annealing for metalorganic chemical vapor deposition-grown GaN on 6H-SiC substrates. The cited portions of Hase merely disclose providing an inert gas containing a small amount of oxygen which results in the production of ozone for removing an organic compound deposited on an optical element.

Moreover, the cited portions of Kanekiyo merely teach a method of dry-etching a sample, such as a semiconductor wafer, having an aluminum film structure to be etched in a plasma under reduced pressure. *See*, Abstract of Kanekiyo. The cited portions of Kanekiyo fail to disclose, teach or render obvious a lithographic projection apparatus having all of the features recited in claim 7.

In view of the foregoing, Applicant respectfully requests that the rejections to the claims be withdrawn and the claims be allowed.

Respectfully submitted,

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